

AMENDMENTS TO THE CLAIMS

In the claims:

Claims 1-14 (canceled)

15. (previously presented): A process to produce a purified carboxylic acid composition said process comprising:

- (a) removing impurities from a crude carboxylic acid slurry composition in a solid liquid displacement zone to form a slurry composition;
- (b) oxidizing said slurry composition at a temperature of about 190°C to about 280°C in a staged oxidation zone to form a staged oxidation composition;
- (c) crystallizing said staged oxidation composition in a crystallization zone to form a crystallized composition;
- (d) removing in a subsequent solid liquid displacement zone impurities from said crystallized composition to form a purified carboxylic acid slurry composition; wherein said impurities comprise 4-carboxybenzaldehyde, trimellitic acid, or 2,6-dicarboxyfluorenone; wherein said subsequent solid liquid displacement zone comprises a solid liquid separator that is operated at a temperature between 110°C and 200°C;
- (e) cooling said purified carboxylic acid slurry composition in a cooling zone to form a cooled purified carboxylic acid slurry composition ; and
- (f) filtering and drying said cooled purified carboxylic slurry composition in a filtration and drying zone to remove a portion of the solvent from said cooled purified carboxylic acid slurry composition to produce said purified carboxylic acid composition.

16. (previously presented) : A process to produce a purified carboxylic acid composition said process comprising:

- (a) removing impurities from a crude carboxylic acid slurry composition in a solid liquid displacement zone to form a slurry composition;

(b) oxidizing said slurry composition at a temperature of about 190°C to about 280 °C in a staged oxidation zone to form a staged oxidation composition;

(c) removing in a subsequent solid liquid displacement zone impurities from said staged oxidation composition to form a purified staged oxidation composition; wherein said impurities comprise 4-carboxybenzaldehyde, trimellitic acid, or 2,6-dicarboxyfluorenone; and wherein said subsequent solid liquid displacement zone comprises a solid liquid separator that is operated at a temperature between 110°C and 200°C;

(d) crystallizing in a crystallization zone said purified staged oxidation composition to form a purified carboxylic acid slurry composition;

(e) cooling said purified carboxylic acid slurry composition in a cooling zone to form a cooled purified carboxylic acid slurry composition ; and

(f) filtering and drying said cooled purified carboxylic slurry composition in a filtration and drying zone to remove a portion of the solvent from said cooled purified carboxylic acid slurry composition to produce said purified carboxylic acid composition.

17. (canceled)

18. (canceled)

19. (original): The process according to claim 15 or 16 wherein said solid liquid displacement zone comprises a solid liquid separator selected from the group consisting of a belt filter, a rotary vacuum filter and a rotary disk pack centrifuge.

20. (previously presented): The process according to claim 15 or 16 wherein said purified carboxylic acid slurry composition is formed without a process for separating impurities from oxidation solvent or hydrogenation step.

21. (previously presented): The process according to claim 15 or 16 wherein said purified carboxylic acid slurry composition has a b* of less than about 3.5.

22. (canceled)

23. (currently amended): A process to produce a purified carboxylic acid composition comprising:

(a) removing in a solid liquid displacement zone impurities from a crude carboxylic acid slurry composition to form a slurry composition; wherein said crude carboxylic acid slurry composition comprises terephthalic acid, catalyst, acetic acid, and impurities that is withdrawn at a temperature between about 140°C and about 170°C from the oxidation of paraxylene in a primary oxidation zone; wherein said catalyst comprises cobalt, manganese or bromine compounds;

(b) oxidizing said slurry composition in a staged oxidation zone to form a staged oxidation composition; wherein said oxidizing is conducted at a temperature between about 190°C to about 280 °C; and wherein said oxidizing is at a higher temperature in said staged oxidation zone than in said primary oxidation zone;

(c) crystallizing said staged oxidation composition in a crystallization zone to form a crystallized composition; and

(d) removing in a subsequent solid liquid displacement zone impurities from said crystallized composition to form said purified carboxylic acid slurry composition; wherein said subsequent solid liquid displacement zone comprises a solid liquid separator that is operated at a temperature between about 110 °C to about 200 °C; and wherein said impurities comprise 4-carboxybenzaldehyde, trimellitic acid, or 2,6-dicarboxyfluorenone;

(e) cooling said purified carboxylic acid slurry composition in a cooling zone to form a cooled purified carboxylic acid slurry composition; and

(f) filtering and drying said cooled purified carboxylic slurry composition in a filtration and drying zone to remove a portion of the solvent from said cooled purified carboxylic acid slurry composition to produce said purified carboxylic acid composition.

24. (previously presented): The process according to claims 15, 16, or 23 further comprising decolorizing in a reactor zone said purified carboxylic acid slurry composition or a carboxylic acid that has been esterified.

25. (previously presented): The process according to claim 24 wherein said decolorizing is accomplished by reacting said purified carboxylic acid slurry

composition with hydrogen in the presence of a catalyst in a reactor zone to produce a decolorized carboxylic acid solution; wherein said catalyst comprises a group VIII metal.

26. (previously presented): The process according to claims 15, 16 or 23 wherein said solid liquid displacement zone comprises a solid liquid separator that is operated at a temperature between about 50 °C to about 200 °C.

27. (previously presented): A process to produce a purified carboxylic acid composition said process comprising:

- (a) oxidizing an aromatic feedstock at a temperature of about 120°C to about 200°C in a primary oxidation zone to form a crude carboxylic acid slurry composition;
- (b) removing impurities from said crude carboxylic acid slurry composition in an solid liquid displacement zone to form a slurry composition;
- (c) oxidizing said slurry composition in a staged oxidation zone to form a staged oxidation composition;
- (d) crystallizing said staged oxidation composition in a crystallization zone to form a crystallized composition;
- (e) removing in a subsequent solid liquid displacement zone impurities from said crystallized composition to form a purified carboxylic acid slurry composition; wherein said impurities comprise 4-carboxybenzaldehyde, trimellitic acid, or 2,6-dicarboxyfluorenone; wherein said subsequent solid liquid displacement zone comprises a solid liquid separator that is operated at a temperature between 110°C and 200°C;
- (f) cooling said purified carboxylic acid slurry composition in a cooling zone to form a cooled purified carboxylic acid slurry composition; and
- (g) filtering and drying said cooled purified carboxylic slurry composition in a filtration and drying zone to remove a portion of the solvent from said cooled purified carboxylic acid slurry composition to produce said purified carboxylic acid composition.

28. (previously presented): A process to produce a purified carboxylic acid composition said process comprising:

(a) oxidizing an aromatic feedstock at a temperature of about 120°C to about 200°C in a primary oxidation zone to form a crude carboxylic acid slurry composition;

(b) removing impurities from said crude carboxylic acid slurry composition in a solid liquid displacement zone to form a slurry composition;

(c) oxidizing said slurry composition at a temperature of about 190°C to about 280 °C in a staged oxidation zone to form a staged oxidation composition;

(d) removing in a solid liquid displacement zone impurities from said staged oxidation composition to form a purified staged oxidation composition; wherein said impurities comprise 4-carboxybenzaldehyde, trimellitic acid, or 2,6-dicarboxyfluorenone; wherein said subsequent solid liquid displacement zone comprises a solid liquid separator that is operated at a temperature between 110°C and 200°C;

(e) crystallizing in a crystallization zone said purified staged oxidation composition to form a purified carboxylic acid slurry composition;

(f) cooling said purified carboxylic acid slurry composition in a cooling zone to form a cooled purified carboxylic acid slurry composition ; and

(g) filtering and drying said cooled purified carboxylic slurry composition in a filtration and drying zone to remove a portion of the solvent from said cooled purified carboxylic acid slurry composition to produce said purified carboxylic acid composition.

29. (previously presented): The process according to claim 27 or 28 wherein said solid liquid displacement zone comprises a solid liquid separator selected from the group consisting of a belt filter, a rotary vacuum filter and a rotary disk pack centrifuge.

30. (previously presented): The process according to claim 27 or 28 wherein said purified carboxylic acid slurry composition is formed without a process for separating impurities from oxidation solvent or hydrogenation step.

31. (previously presented): The process according to claim 27 or 28 wherein said purified carboxylic acid slurry composition has a b* of less than about 3.5.